Abdul-Rahman Ibrahim

Electrical and Electronics Engineering , AI & Data Science Researcher
Istanbul, Turkey
Email — +905527834408 — Github — Portfolio

RESEARCH INTERESTS

Biomedical Signal Processing, Optimization of Machine Learning Models, Software Engineering, Computer Vision, Data Science, Data Augmentation, Data Mining

EDUCATION

Koç University, Istanbul, Turkey — October 2020 — January 2025
Bachelor of Engineering in Electrical and Electronics Engineering — Cumulative GPA: 3.08/4.00
Senior Design Project: Koç University Books AI

Vrije University, Amsterdam, Netherlands — September 2022 — January 2023
Minor in Data Science — Cumulative GPA: 3.84/4.00
Final Project: Europe Covid-19 Data Analysis and Visualizations

ACADEMIC AND PROFESSIONAL EXPERIENCE

Beko Corporate — Istanbul, Turkey
Complexity Researcher, R&D — December 2023 — Present

- Developing mathematical models to compute common parts ratio (CPR) of products.
- Developed CNN models to detect faults in washing machines, improving fault detection accuracy by 5%.
- Automated the configuration of Beko's product and sales configurator.
- Responsible for the monthly calculations of CPR of washing machines, washer driers, dish washers, and cooking appliances.
- Make suggestions on products that needs to be phased-out due to analysing their internal and external complexities over the years.

Carex AI — California, USA
AI Intern — February 2024 — June 2024

- Implemented State-of-the-art CNN model to estimate heart rate from PPG signals.
- Wrote python codes to automate the selection of best models and hyper parameters for vitals estimation.
- Learned the applications of signal processing techniques such as FFTs, 1D and 2D-CNNs.
- Developed models to remove noise and motion artifacts from PPG and ECG signals given Acceleration signals.
- Learned to use AWS in building AI models.

Koç University — Istanbul, Turkey
Summer Research Assistant — June 2023 — September 2023

- Find correlations between each of ECG and SCG with body composition features among 14 patients.
- Worked with 3 students to develop a framework for Seizure Prediction using EEG signals.

Sentez Security & Software Services — Istanbul, Turkey
Research Assistant — June 2023 — July 2023

- Developed a software for finger print tracking attendance machine.
- Worked with a team of 4 to process images from camera for user identification.

PROJECTS

MPC Estimation of Blood Pressure using vitals data from NHANES — Istanbul, Turkey
Researcher — January 2024 — January 2024

- Developed a real-time blood pressure estimation pipeline using Multilayer Perceptron and benchmarked with SVM and LR classifiers.
- Scraped and processed large datasets securely from NHANES, improving data processing efficiency by 15%.

Three-Three-Marbles Game Development — Istanbul, Turkey
Developer — August 2022 — August 2022

- Recreated a 2-player childhood game using python.

- In this 2-player game, a square is drawn on the ground in the sand. The square has two diagonals intersecting at its center. Additionally, there is one horizontal line and one vertical line, both bisecting the intersection point of the diagonals.
- Each player has 3 stones in their hand. Each player's stones are unique.
- Players take turns placing stones in the intersection of these lines, aiming to strategically have their stones aligned diagonally, horizontally or vertically.

YKS Math Solver Using LLAMA-2 and Wolfram Alpha API
Researcher

Istanbul, Turkey
August 2023 — September 2023

- Combined a fine-tuned LLAMA-2 model with Wolfram Alpha API
- Developed a complexity checker for dynamic routing of questions based on complexity level.

Smart Decryption of Caesar Cipher English Encoded Texts
Developer

Istanbul, Turkey
June 2022 — June 2022

- By iterating through the index of each of the 26 letters of the English alphabet and decoding each caesar cipher encrypted character with a key equal to the index of the letter, I then concatenated the characters to form a word.
- The word is checked in a data set containing all the english words.
- If the word is found in the data set, then we have a valid word thus the encryption key equals the index of the character at the instance the word was formed.
- We then decode the characters in the text with respect to the key.
- Text is decoded at once!

PUBLICATIONS

Conference Paper
Work in Progress

- Abdul-Rahman Ibrahim, Can Dımıcı, Elçin Abalı, and Beren Semiz "A Robust Framework for Real-Time Seizure Detection Using Electroencephalography Signals," EUSIPCO 2024

SELECTED COURSES

Coursera Certificate Courses

- Introduction to Machine Learning, *Duke University*
- Introduction to Programming in Matlab, *Vanderbilt University*
- Python Data Structures, *University of Michigan*
- Crash Course on Python, *Google*
- Introduction to HTML5, *University of Michigan*
- Introduction to CSS3, *University of Michigan*

Bachelor's Courses

- Programming for Engineers
- Introduction to Artificial Intelligence
- Biomedical Signal Processing
- Nanotechnology and Nanomaterials
- Communication Networks
- Introduction to Data Science
- Data Wrangling
- Information Retrieval
- Data Structures and Algorithms
- Logistic Analysis

SKILLS

- **Programming Languages:** C/C++, MATLAB, Python, VHDL, FPGA, Arduino
- **Tools and Frameworks:** AWS, Django, Pandas, PyTorch, Scikit-learn
- **Software:** Excel, MS WordOverleaf, PowerPoint
- **Soft Skills:** Listening, Problem-solving, Work-ethic